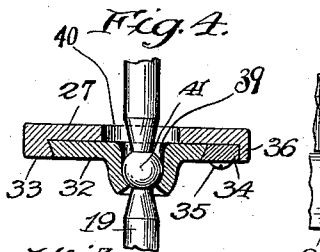
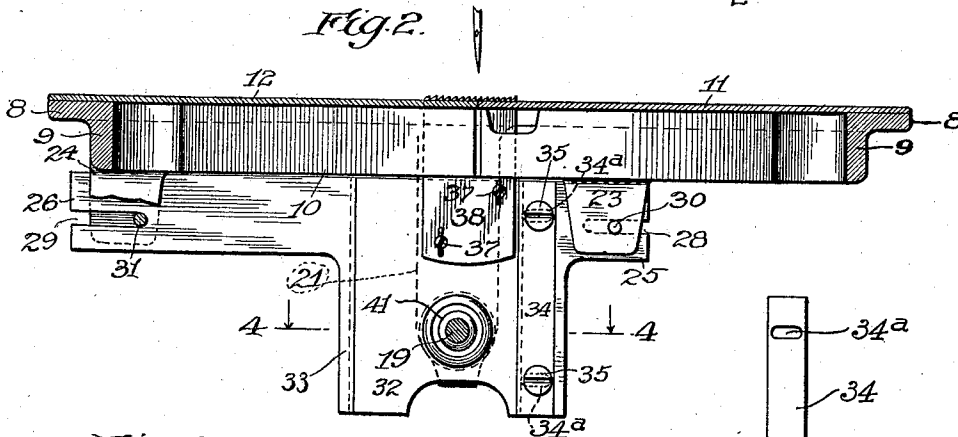
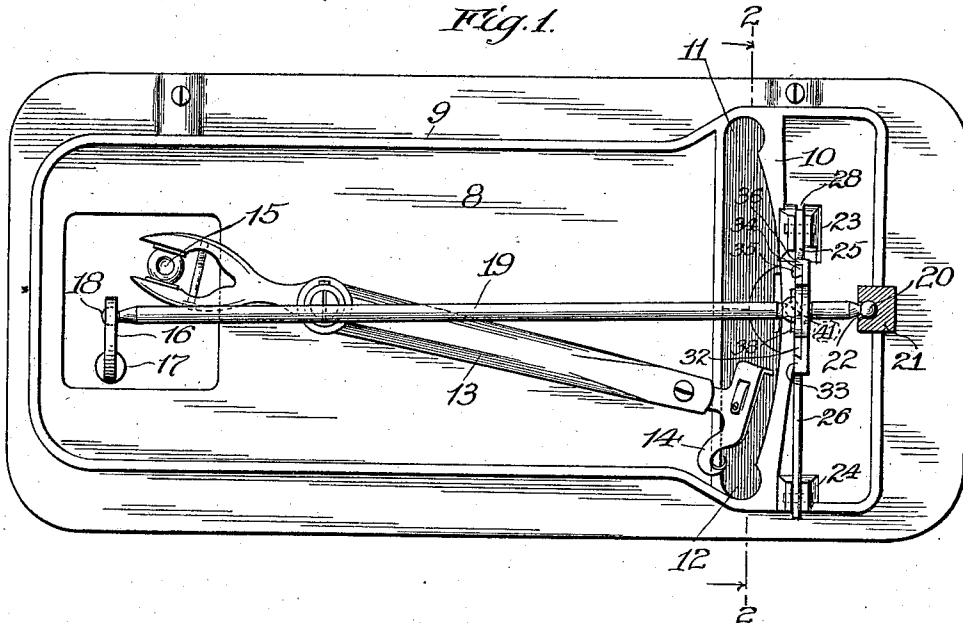


W. R. PARSONS.
SEWING MACHINE.
APPLICATION FILED MAR. 18, 1907.

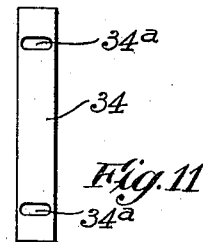
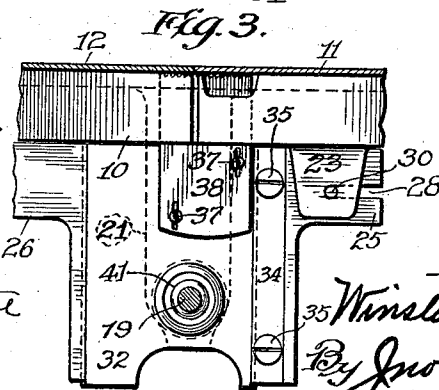
1,014,022.

Patented Jan. 9, 1912.

3 SHEETS-SHEET 1.



Witnesses
Harry R. L. White
Ray White.



Inventor
Winslow R. Parsons
By Jno. J. Elliott
Att'y.

W. R. PARSONS.
SEWING MACHINE.
APPLICATION FILED MAR. 18, 1907.

1,014,022.

Patented Jan. 9, 1912.

3 SHEETS—SHEET 2.

Fig. 5.

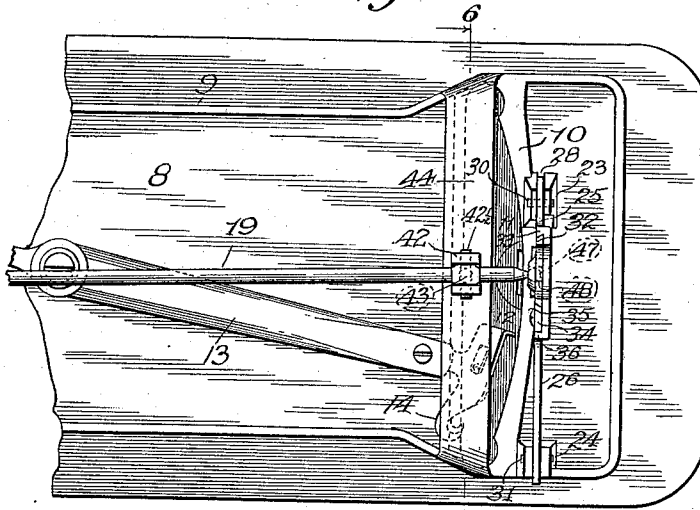


Fig. 6.

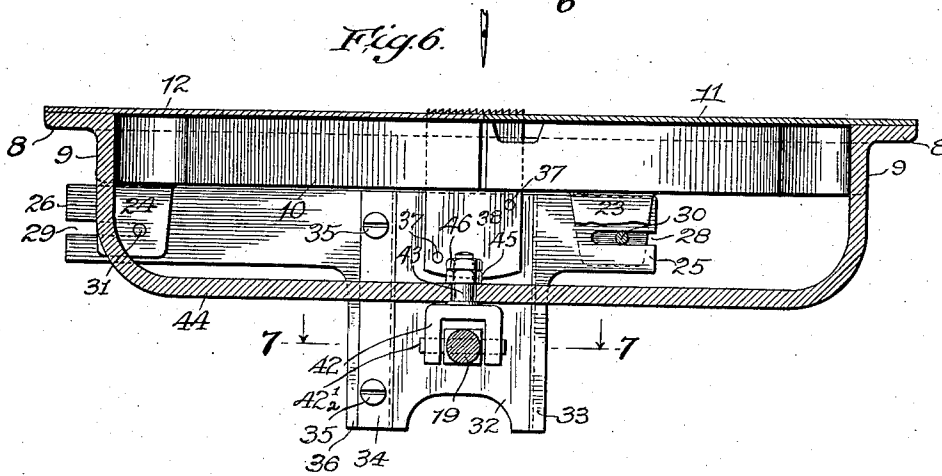
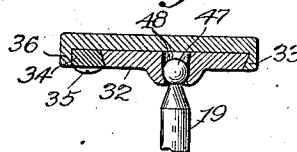


Fig. 7.



Witnesses
Harry R. Lovelace
Ray White

Inventor
Winslow R. Parsons
By Jno. L. Elliott
Atty.

W. R. PARSONS.
SEWING MACHINE.
APPLICATION FILED MAR. 18, 1907.

1,014,022.

Patented Jan. 9, 1912.

3 SHEETS—SHEET 3.

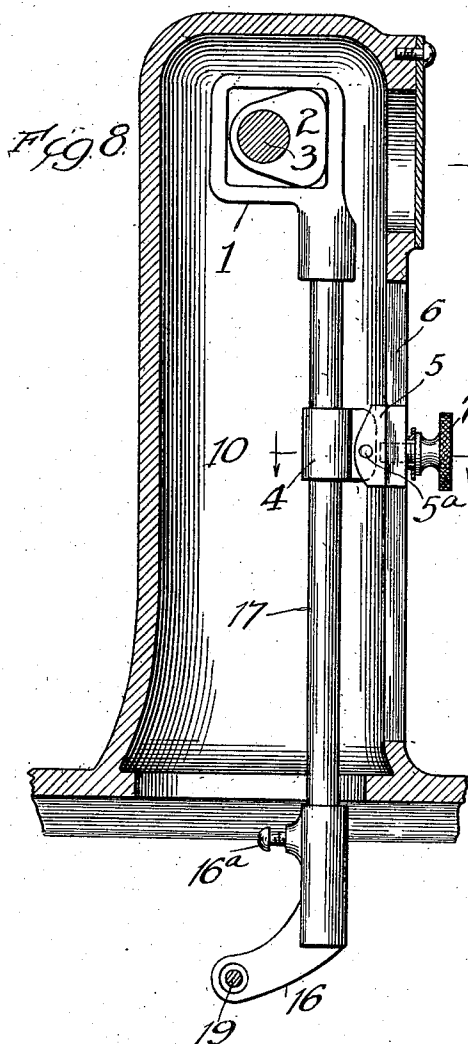


Fig. 9.

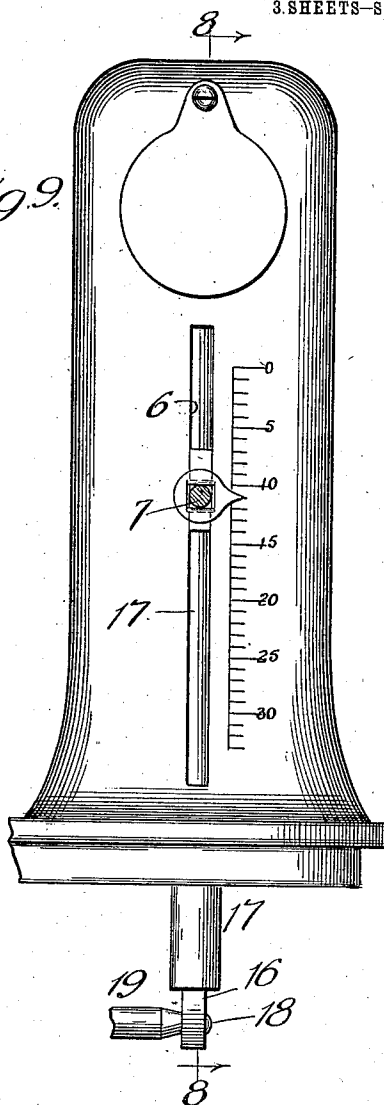
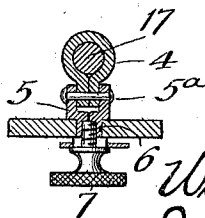


Fig. 10.



Witnesses
Harry R. White
Ray White.

Inventor:
Winslow R. Parsons
By Jno. Y. Elliott
Att'y.

UNITED STATES PATENT OFFICE.

WINSLOW RANDALL PARSONS, OF CHICAGO, ILLINOIS.

SEWING-MACHINE.

1,014,022.

Specification of Letters Patent.

Patented Jan. 9, 1912.

Application filed March 18, 1907. Serial No. 362,902.

To all whom it may concern:

Be it known that I, WINSLOW RANDALL PARSONS, a citizen of the United States, and resident of Chicago, in the county of Cook and State of Illinois, have invented certain new and useful Improvements in Sewing-Machines, of which the following is a full, clear, and exact specification.

This invention relates to improvements for feed mechanism for sewing machines and means by which the vibrating lever of a sewing machine is connected with the bed-plate.

The prime object of my invention is to conduct fabrics forward beneath the presser-foot of a sewing-machine, both positively and in a perfectly straight line relative to which the needle-bar is perpendicular and in such a manner that the fabric cannot be strained, drawn or puckered; that an absolutely uniform length of stitch is insured; that the strain upon the needle is reduced to a minimum, and that a substantially shorter and consequent stronger needle of any given size may be successfully used.

A still further object of my invention is to suspend the gyrating lever of a sewing machine in a universal joint depending from the bed-plate and in a line directly below the feed-dog, and out of the path of the shuttle-carrier and other mechanism, tending under certain conditions to obstruct their operation.

With these ends in view my invention is embodied in certain features of novelty in the construction, combination and arrangement of parts by which the said objects and certain other objects hereinafter appearing are attained, all as fully described with reference to the accompanying drawings, and more particularly pointed out in the claims.

In said drawings: Figure 1 illustrates a bottom plan view of a sewing machine containing my invention. Fig. 2, a transverse section on the line 2, 2 of Fig. 1 with the feed-dog in its elevated position. Fig. 3, a similar view with the feed-dog in its depressed position. Fig. 4, a detail transverse section on the line 4, 4 of Fig. 2. Fig. 5, a detail bottom plan view of a sewing machine showing a novel means for sustaining the vibrating lever and for its engagement with the feed-actuating devices. Fig. 6, a transverse section on the line 6, 6 of Fig. 5. Fig.

7, a detail cross-section on the line 7, 7 of Fig. 6. Fig. 8, a vertical longitudinal section through the upright arm of a sewing-machine, showing the feed-lever, and the means adjusting it, to produce longer and shorter stitches. Fig. 9, a side elevation of the arm. Fig. 10, a detail transverse section on the line 10—10 of Fig. 8 and Fig. 11 is a detail showing the slotted construction of the adjustable bar for taking up wear on the plate 32.

Similar characters of reference indicate the same parts in the several figures of the drawing.

The feed actuating lever 17 (see Figs. 8 and 10) is provided with a strap 1 operated by a cam 2 on the main shaft 3 and has its lower end bent at 16, and is preferably formed with a socket-piece secured to the said feed actuating lever by a set-screw 16^a. This construction enables a four-motioned movement, or four separate movements, to be imparted to the feed operating lever 19. The feed-actuating lever 17 works in a shifting fulcrum consisting of a sleeve 4 secured to a block 5 by a pivot 5^a vertically adjustable in a slot 6 in the vertical part of the bracket, and locked in its adjustment by a set screw 7. This adjustment enables the movements of the lever 19 to be regulated, to vary the feed, as is common in sewing machines.

Referring to Figs. 1 to 4 inclusive, 8 indicates the bed-plate of a sewing machine provided with an annular depending continuous flange 9 and a cross flange 10 toward one end adjacent which access is had to the shuttle-carrier through an opening closed by the opposing shuttle-slides 11 and 12, and 13 the vibrating shuttle-lever supporting the shuttle-carrier 14 and actuated by the usual power transmitting lever connected with said shuttle-lever by a universal joint 15.

Connected with the bent end 16 of the feed actuating lever 17 by a ball and socket joint 18 is a gyrating lever 19 having its opposite end terminating in a ball 20, bearing in a lug 21 depending from the bed-plate and which has a flaring opening 22 for the purpose of allowing a vibrating movement of the lever 19.

Depending from the bed-plate adjacent the cross-flange 10 are spaced lugs 23 and 24 provided with transverse slots forming a

bearing and a guide for arms 25 and 26 projecting from a plate 27 by means of open end slots 28 and 29 bearing on pins 30 and 31 in and extending transversely of the lugs 23 and 24.

Sliding vertically upon the plate 27 is a plate 32 which (see Fig. 4) is divergingly beveled on its edges and confined against lateral movement by a flange 33 upon one side of the plate 27, and by means of a laterally adjustable bar 34 and set screws 35—35 passing through elongated slots 34^a in the bar 34 and screwed into the plate 27, the adjustment of the bar 34 providing for taking up the wear of the edges of the plate 32, and its outward movement being preferably limited by means of a flange 36 upturned from the plate 27.

Rigidly secured to the vertically sliding plate 32 by means of screws 37, 37 is a feed-dog 38 but which may be otherwise rigidly secured thereto or formed integral therewith if desired.

Both the laterally moving plate 27 and the vertically moving plate 32 are respectively provided with slots 39 and 40 (see Fig. 4) by means of which the vibrating lever is projected through both plates directly below and in a line transverse to the movement of the feed-dog, and has an end bearing in the depending lug 21 and a shifting engagement against the vertically sliding plate 32 and by means of which said plate 32 is reciprocated vertically and carries with it the feed-dog.

For the purposes of reducing friction between the vibrating lever 19 and the vertically moving plate 32, the lever 19 may, adjacent the plates 27 and 32, be reduced to the form of a ball 41, as shown in Fig. 4.

In Figs. 5, 6 and 7 is illustrated in detail a modification of the means for supporting the lever 19 and engaging it with the vertically sliding plate 32 and which consists in pivoting the vibrating lever in a yoke 42, in turn provided with a pin 43 projecting upwardly through a bar 44 depending from the bed-plate and having thereon a nut 45 supported by the bar and held against movement by a lock-nut 46, the opening surrounding the pin being of somewhat larger diameter so that it may not obstruct the free movement of the pin 43.

The lever 19 is pivoted in the yoke 42 by the pivot 42 $\frac{1}{2}$ which admits of a free easy motion up and down of both ends of the lever 19, and the end of the lever 19 may, as shown in Fig. 7, terminate in a ball 47 projecting into an outwardly flaring socket 48 in the sliding plate 32.

In practice the bar 44 is located as near the end of the lever 19 as is practical in order that the fulcrum of the lever in its universal joint may be as near the sliding plate as may be and thereby lengthen the leverage

of the vibrating lever and correspondingly the resistance of the sliding plate thereto.

In operation, the sliding plate 27 not only necessarily reciprocates in a perfectly straight line, but maintains the plate 32 against moving in any direction other than at a perfect right angle thereto, the result being that the feed-dog makes both its forward and backward stroke in perfectly straight parallel lines and that it is elevated and depressed in perfectly straight parallel lines at a right angle to the path of its forward and back movement, or in other words the direction of movement of the feed-dog is along the lines of a perfect rectangle. This result is due to the fact that the horizontally reciprocating carrier plate 27 is restrained from any vertical movement by the pins 30 and 31 which fit closely in the slots 28 and 29 in said plate 27, and to the fact that the vertically reciprocating plate 32, to which the feed-dog 38 is directly attached, is restrained from any horizontal movement independently of said carrier plate 27 by reason of the close fit of said plate 32 in its vertical guideway in the said carrier plate, as also to the fact that all of the movements of the feed dog are derived from the vibrating feed lever 19 having a universal joint connection with the plate 32. This perfectly rectangular movement of the feed-dog produces a number of important and desirable results not possible of attainment when any portion of its surface is at any time tilted or moves on the arc of a circle, for in rising as it does, above the throat-plate of a sewing machine in a line parallel with the top of the throat-plate, the whole surface of the teeth of the feed-dog not only simultaneously engages the cloth but moves it forward in a straight line parallel with the top of the throat-plate and beneath the presser foot until the end of the stitch is reached, when the feed-dog drops in a line both perpendicular to the teeth and parallel with the needle and at a right angle to the surface of the fabric being stitched.

Furthermore my invention not only provides for a perfectly rectangular movement of the feed-dog by which there is a less tendency of the fabric to pucker and draw, but there being no possible side motion of the feed-dog and its actuating mechanism such as is liable to occur in former machines, it works with less noise and avoids any necessity for the employment of springs in its construction.

The construction of parts by which the vibrating lever is connected with and actuates the feed-dog is very simple in that it has few wearing parts and is convenient of adjustment to take up lost motion produced by wear, and furthermore there is little or no liability for any of these parts to work loose or get out of adjustment.

Having described my invention, what I claim as new and desire to secure by Letters Patent, is:

1. In a sewing machine, the combination
5 with a feed-dog, of a horizontally movable
carrier-plate, means for restraining said
plate from vertical movements, a vertically
movable plate carrying the said feed-dog,
means for restraining said vertically mov-
10 able plate from horizontal movement inde-
pendently of the said carrier plate, a lever
for actuating said parts, and means for im-
parting a four-motioned movement to said
lever, whereby an exact rectangular move-
15 ment will be imparted to the said feed-dog.

2. In a sewing machine, the combination
with a feed-dog, of a horizontally movable
carrier-plate, means for restraining said
plate from vertical movements, a vertically
20 movable plate carrying the said feed-dog,
means for restraining said vertically mov-
able plate from horizontal movements inde-
pendently of the said carrier-plate, a vi-
brating lever for actuating said parts, and
25 means for imparting a four-motioned move-
ment to said lever, said lever having a uni-
versal joint connection with the said verti-
cally movable plate, whereby an exact rec-
tangular movement will be imparted to the
30 said feed dog.

3. In a sewing machine, the combination
with a feed-dog, of a horizontally movable
carrier-plate, means for restraining said
plate from vertical movements, a vertically

movable plate carrying the said feed-dog, 35
means for restraining said vertically mov-
able plate from horizontal movements inde-
pendently of the said carrier-plate, a vi-
brating lever for actuating said parts, and
means for imparting a four-motioned move- 40
ment to said lever, the latter having a uni-
versal joint connection with the said verti-
cally movable plate at a point immediately
below and in the vertical plane of said feed-
dog. 45

4. In a sewing machine, the combination
with a feed-dog, of a horizontally movable
carrier-plate, means for restraining said
plate from vertical movements, a vertically
movable plate carrying the said feed-dog, 50
means for restraining said vertically mov-
able plate from horizontal movement inde-
pendently of the said carrier-plate, and a vi-
brating lever for actuating said parts, said
lever having a universal joint connection 55
with the said vertically movable plate and
also a universal joint connection with a sup-
port on the bed-plate at a point adjacent to
said carrier-plate, whereby an exact rectan-
gular movement will be imparted to the said 60
feed-dog.

In witness whereof, I have hereunto set
my hand and affixed my seal, this 13th day
of March, A. D. 1907.

WINSLOW RANDALL PARSONS. [L. S.]

Witnesses:

JNO. G. ELLIOTT,
M. S. REEDER.

Copies of this patent may be obtained for five cents each, by addressing the "Commissioner of Patents,
Washington, D. C."